

### **Amendments to the Claims**

1 1. (currently amended) A method for learning a structure of a video to detect  
2 events in the video consistent with the structure, comprising:  
3       selecting sets of features from the video;  
4       updating a hierarchical ~~statistical~~ hidden Markov model for each set of  
5 features;  
6       evaluating an information gain of the hierarchical ~~statistical~~ hidden  
7 Markov model;  
8       filtering redundant features;  
9       updating the hierarchical ~~statistical~~ hidden Markov model based on  
10 the filtered features;  
11       applying a Bayesian information criteria to each hierarchical hidden  
12 Markov model and feature set pair; and  
13       rank ordering the hierarchical hidden Markov model and feature set  
14 pairs to learn the structure and detect the events in the video in an  
15 unsupervised manner.

1 2. (original) The method of claim 1, in which the hierarchical statistical  
2 model uses Gaussian mixtures.

3. (canceled)

1 4. (currently amended) The method of ~~claim 3~~ claim 1, in which states of  
2 events in the video are modeled as low-level hidden Markov models in the  
3 hierarchical hidden Markov model, and the events are modeled as a high-  
4 level Markov chain in the hierarchical hidden Markov model.

1 5. (currently amended) The method of claim 1, in which the features include  
2 dominant color ratios, motion intensity, ~~a least-square-estimates~~ least-square  
3 estimates of camera translation, audio volume, spectral roll-off, low-band  
4 energy, high-band energy, zero-crossing rate (ZCR).

1 6. (original) The method of claim 1, in which the features are filtered with a  
2 Markov blanket.

1 7. (original) The method of claim 1, in which the evaluating is performed  
2 using expectation maximization and a Markov chain Monte Carlo method.